From the broadest possible perspective, data mining approaches analyze data obtained from a phenomenon to:

- a. understand past behavior or predict future behavior.
- b. predict future behavior and explain the causes of that behavior.
- c. understand or anticipate future deviations from expected behavior.
- d. Não quero responder
- e. anticipate future deviations from expected behavior and explain the causes of these deviations.

### Pergunta 2 Por responder Pontuação 1,0 P Destacar pergunta

In general, the most important challenge in carrying out a successful data mining project is the lack of guarantees regarding the results because:

- a. The CRISP-DM methodology does not guarantee that the business objectives are quantifiable.
- b. Não quero responder
- Oc. CRISP-DM methodology does not provide instruments to validate these results.
- d. The data may not contain the information needed to achieve the business objectives.
- e. the volume of data is so large that it is not possible to analyze it.

# Pergunta 3 Por responder Pontuação 1,0 P Destacar pergunta

Indicate in which of the following cases the reliability of the results of a poll on the vote intentions would be significantly affected. The poll is made on the basis of a sample of citizens:

- a. selected completely randomly.
- O b. Não quero responder
- c. national and/or foreigners entitled to vote.
- od. with landline.
- O e. with minimum age to vote, in accordance with the electoral law of Portugal.

A set of data has missing values in a numeric variable, caused by data collection errors. Which of the following techniques is best suited to fill these values:

a. Não quero responder

Selecione uma opção de resposta:

- b. the most frequent observed value.
- c. a value much higher than the highest observed value.
- O d. 0.
- e. median.

## Pergunta 5 Por responder Pontuação 1,0 V Destacar pergunt

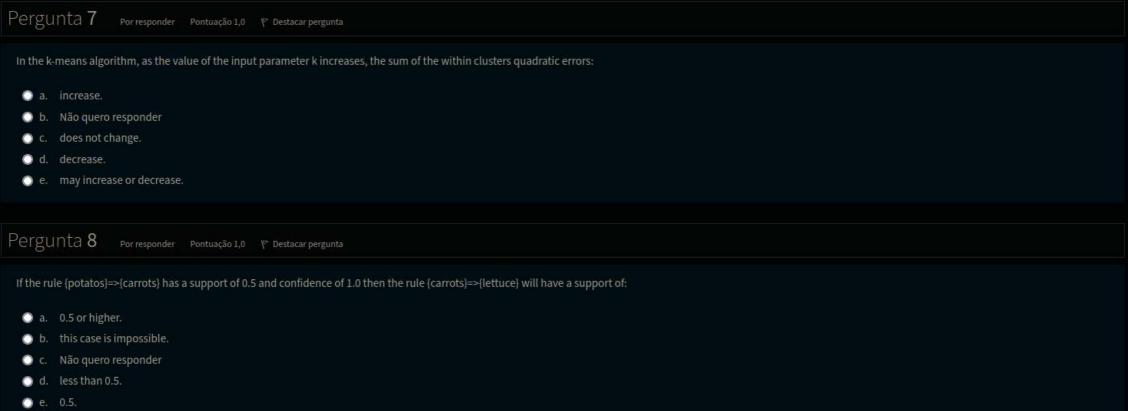
In a classification problem, where the objective is to predict whether a bus will be delayed in arriving at the next stop or not, the use of the data to estimate the generalization error should be:

- a. Não quero responder
- b. use a random sample of 70 percent of the data for training and the rest for testing.
- c. use a random sample of 30 percent of the data for training and the rest for testing.
- d. given day d, use data up to d-1 for training and data from d for testing.
- e. given day d, use data from d+1 for training and data up to d for testing.

## Pergunta 6 Por responder Pontuação 1,0 & Destacar pergunt

A prediction problem can be seen as, given a phenomenon y=f(x1, x2, ..., xN), apply a learning algorithm:

- a. to the training data, represented as (y, x1, x2, ..., xN), to assess whether f is really the function that determines the relationship between the target variable y and the independent variables (x1, x2, ..., xN).
- b. Não quero responder
- c. to evaluate whether the value of the function f(x1, x2, ..., xN) is really y.
- d. to the training data, represented as f(y, x1, x2, ..., xN), to try to predict the value of y.
- e. to the training data, represented as (y, x1, x2, ..., xN), to try to identify f.



## Pergunta 9 Por responder Pontuação 1,0 🖓 Destacar pergunta

One method to control overfitting in decision trees is to: a. increase the number of levels in the tree, to minimize the probability that a leaf will have an excessive number of examples.

- increase the number of levels in the tree, to minimize the probability that a leaf will have an insufficient number of examples.
- reduce the number of levels in the tree, to minimize the probability that a leaf will have an excessive number of examples.
- Não quero responder e. reduce the number of levels in the tree, to minimize the probability that a leaf will have an insufficient number of examples.

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- a. Não quero responder
- b. quantifies the probability that a negative example is ranked higher than a positive example.
- c. quantifies the probability that a positive example is ranked higher than a negative example.
- d. represents graphically the probability that a positive example is ranked higher than a negative example as the decision threshold decreases.
- e. represents graphically the probability that a negative example is ranked higher than a positive example as the decision threshold decreases.

## Pergunta 11 Por responder Pontuação 1,0 P Destacar pergunta

A Neural Network is a universal approximator because:

- a. Não quero responder
- b. it can model any continuous function with only 1 node in the internal layer.
- C. it can learn any model that any other algorithm learns, including decision trees, SVM and naive Bayes, given a sufficient number of nodes.
- d. it can learn any model that any other algorithm learns, including decision trees, SVM and naive Bayes.
- e. it can model any continuous function, given a sufficient number of nodes.

Metalearning can be described as:

Pergunta 12

a learning approach to understand the behavior of learning algorithms.

Por responder Pontuação 1,0 🖓 Destacar pergunta

- b. the development of super-algorithms that are immune to the No-Free-Lunch theorem.
- c. a learning approach to correct the predictions made by learning algorithms.
- O d. Não quero responder
- e. the development of super-algorithms that are immune to the curse of dimensionality.